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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/018,817	08/12/2002	Jayant Neogi	42637/GDL/N288	1814

7590 02/17/2004  
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EXAMINER  
SMITH, JOHNNIE L

ART UNIT 2881  
PAPER NUMBER

DATE MAILED: 02/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/018,817

Applicant(s)

NEOGI ET AL.

Examiner

Johnnie L. Smith II

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>0902/1201</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claims 1-10 are rejected under 35 U.S.C. 102(a) as being anticipated by WO/98/52774 (Smith et al). In reference to claims 1 and 2, Smith discloses a method of branding a gemstone diamond comprising directing a controlled focused ion beam at the gemstone diamond to be branded and manipulating the beam such that the beam impacts the surface of the gemstone diamond at a number of specified locations for a specified amount of time at each location to graphitize a portion of the gemstone diamond in the shape of a desired design (Page 2). In reference to claims 3-5 and 7-10, Smith teaches a method wherein the design is not visible to the naked human eye, is less than 250 micrometers wide, and is between about 7 nanometers and 250 micrometers wide (abstract). Smith further teaches the method comprising steps of removing the graphitized portions of the gemstone diamond so that the design is carved into the surface of the gemstone diamond,

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wherein the gemstone diamond is coated with a conductive layer, wherein the conductive layer is carbon, and wherein the gemstone diamond is exposed to a charge neutralizer (abstract). In reference to claim 6, Smith teaches a method wherein the focused ion beam is composed of Gallium ions (Page 2).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 11-20 and 25-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO/98/52774 (Smith et al). In reference to claim 11 and 15-20,

Smith teaches a method of branding a gemstone diamond comprising directing a controlled focused ion beam at the gemstone diamond to be branded and manipulating the beam, but failed to clearly teach the steps of securing the gemstone diamond onto a holder and using the system to create mapping data which represents the distances between the location on the gemstone diamond which will be branded and certain set reference points on the holder. The said holder being portable, conductive, made of aluminum or copper capable of holding more than one gemstone diamond at a time. It would have been obvious to one of ordinary skill in the art at the time of the invention to have such a holder capable of holding said gemstone to be branded since it is notoriously old and common in the art of diamond bar-coding to have holders in such apparatuses.

6. In reference to claim 12, Smith teaches the all base elements of claimed invention, but failed to clearly show the method further comprising generating design data which represents the design to be branded onto the gemstone diamond; and using the design data in conjunction with the mapping data to manipulate the focused ion beam. It would have been obvious to one of ordinary skill in the art at the time of the invention to generate such data since it is old in the art of gemstone bar-coding to have data representative of the design being placed upon the said gemstone. In reference to claims 13-14, Smith discloses a method comprising the

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step of coating the gemstone diamond with a layer of conductive coating, wherein the charged particles are Carbon (abstract).

7. In reference to claims 21-24, fails to clearly teach a method wherein the coordinate transfer system identifies at least three reference points on the holder and determines the mapping data, wherein the mapping data is determined for more than one gemstone diamond, and wherein the design data is converted into stream files which comprise data representing the design in the form of pixels and offsets from a local coordinate system. It would have been obvious to one of ordinary skill in the art to use computer programs to identify and map data representative of the design being branded because it is old in the art of bar-coding to assign data per code within a system.

8. In reference to claim 25, It would be obvious to one of ordinary skill in the art at the time of the invention to have a method for relating a local coordinate system associated with the design to be branded on the gemstone diamond to a global coordinate system associated with the mapping data, since it is notoriously old in the art of bar-coding diamonds to have such a system for the purpose of tracking and recognizing said diamonds. In reference to claims 26-30, Smith teaches the method wherein the focused ion beam brands the gemstone diamond by converting a portion of the gemstone diamond into graphite and removing the

graphite by various cleaning means, then exposing the branded gemstone diamond to plasma (abstract). Smith does not disclose the beam being manipulated by a computer but it would have been obvious to one of ordinary skill in the art to use a computer to vary the ion beam because it is notoriously old in the art of ion beam apparatuses to have beams computer operable.

9. In reference to claims 31-36, Smith teaches an apparatus for branding a gemstone diamond comprising directing a controlled focused ion beam at the gemstone diamond to be branded and manipulating the beam but failed to teach the use of computers and programming to vary the ion beam for the purposed of having mapping data to manipulate the focused ion beam machine such that it effect the focused ion beam to create a said design or bar-code. It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate computers and programs that allows you to manipulate the ion beam and generate such data since it is old in the art of ion beams to use computers as a means of beam control and old in the art of gemstone bar-coding to have data representative of the design being placed upon the said gemstone.

***Response to Arguments***

10. Applicant's arguments filed 11/17/2003 have been fully considered but they are not persuasive. Applicant argues that the reference cited failed to qualify as prior art because of a recited date of March 6, 2000 whereas applicant's priority is to a provisional application filed June 16, 1999. The above reference however has a publication date of November 26 1998 and is the parent application upon which the cited Smith reference originate. Therefore all information disclosed in the Smith reference is disclosed in the international publication as discussed in the rejection above.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Johnnie L Smith II whose telephone number is 571-272-2481. The examiner can normally be reached on Monday-Thursday 7-4 P.M. and Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R Lee can be reached on 571-272-2477. The fax



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phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Johnnie L. Smith II

Johnnie L Smith II  
Examiner  
Art Unit 2881



JOHN R. LEE  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800